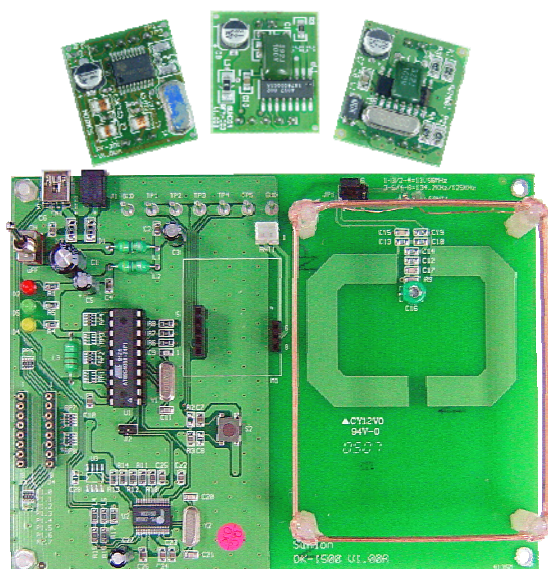




RF Module Demo Kit DK-1500



使用手冊

2007/01/31

V1.5

聯暘電子股份有限公司

[Sunion Electronics Corporation](http://www.sunion.com.tw/)

台北縣三重市興德路 123-7 號 11 樓

TEL : +886-2-8512-1456 FAX : +886-2-8512-1457

<http://www.sunion.com.tw/>

— 目 錄 —

1.	DK-1500 硬體說明.....	03
1.1	硬體架構圖.....	03
1.2	硬體接點說明.....	04
2.	DK-1500 V1.50 Communication Protocol.....	05
2.1	Format of Request and Response.....	05
2.2	FRM-001.....	07
2.3	FRM-003.....	07
2.4	FR-220.....	13
2.5	FR-230.....	24

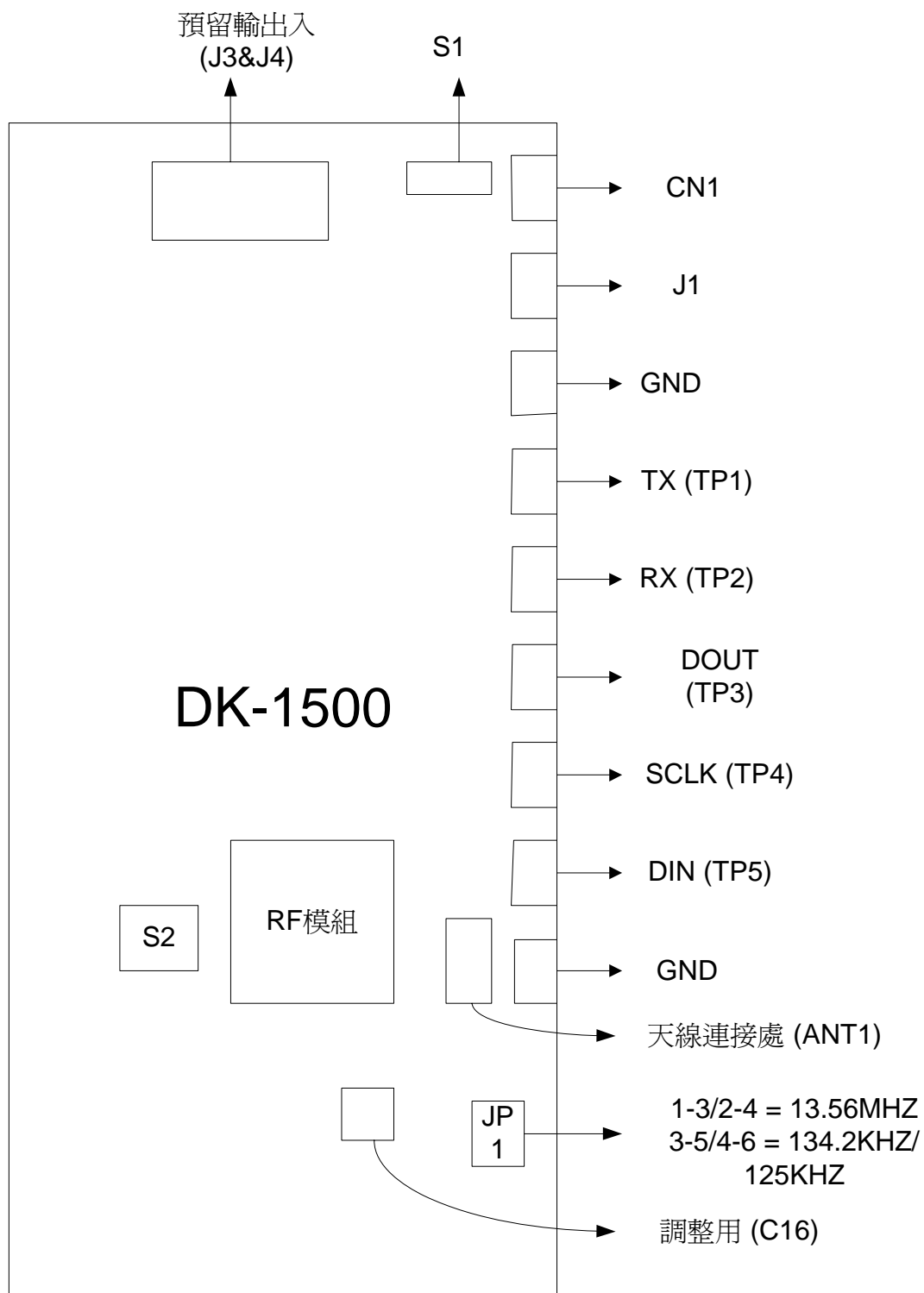
合法版權聲明

本手冊是由“聯暘電子股份有限公司 Sunion Electronics Corp.”所編寫；“聯暘電子股份有限公司 Sunion Electronics Corp.”保留一切對本手冊編輯修改之權利，任何第三人不得於未經“聯暘電子股份有限公司 Sunion Electronics Corp.”書面授權之情況下複製、編輯、修改及引用本手冊之內容。

“聯暘電子股份有限公司 Sunion Electronics Corp.”擁有不經通知修改或改良本手冊所述之內容的權利。

1. 硬體 DK-1500 說明

1.1 硬體架構圖：



1.2 硬體接點說明：

1. S1: 為電源開關當撥到 ON 時板子開始動作當 OFF 時板子停止動作。
2. CN1: 為 Mini USB 亦可當電源輸入。
3. J1: 為 DC JACK 5V 輸入電源（PS：禁止 DC 5V 和 Mini USB 同時一起使用）。
4. GND: 接地。
5. TP1: 可藉由此量測點、量測 TX 訊號。
6. TP2: 可藉由此量測點、量測 RX 訊號。
7. TP3: 可藉由此量測點、量測 DOUT 訊號。
8. TP4: 可藉由此量測點、量測 SCLK 訊號。
9. TP5: 可藉由此量測點、量測 DIN 訊號。
10. JP1: 用來切換預先已規劃好的天線。
11. ANT1: 為外接天線輸出如使用外接天線需把 JP1 上的 Jump 移除才可使用。
12. C16: 可調整阻抗匹配值會影響天線讀取距離（不建議自行調整）。
13. RF 模組: 更換 RF 模組的位置。
14. S2: 為 RESET 彈跳開關按下時 MCU 隨即 RESET。
15. J3&J4: 預留輸出/入用共 8 個。

2. DK-1500 V1.50 Communication Protocol

2.1 Format of Request and Response

(1) Format of Request (PC to DK-1500)

LEN	MS	Cmd	Param	BCC
-----	----	-----	-------	-----

(a) LEN: Length of data string from MS to last byte of “Param”. 1 byte.

(b) MS: Module Select. To inform DK-1500 which RF module will be used. 1 byte.

MS:

0 --> RFM-001

1 --> RFM-003

2 --> RF-220

3 --> RF-230

Other value --> incorrect value, DK-1500 will return a failue.

(c) Cmd: Command you want to send to module. Each module has different commands

(d) Param: Parameters. The content and length of “Param” varies from different modules and commands.

(e) BCC: Checksum. It is the sum of all bytes in the string from “LEN” to last byte of “Param”. 1 byte.

(2) Format of Response (DK-1500 to PC)

LEN	MS	Cmd	Resp	BCC
-----	----	-----	------	-----

- (a) LEN: Length of data string from MS to last byte of "Param". 1 byte.
- (b) MS: Module Select. It should be the same as MS of request. 1 byte.
- (c) Cmd: Command.
- (d) Resp: Response from DK-1500. The content and length of "Resp" varies from different modules and commands.
- (e) BCC: Checksum. It is the sum of all bytes in the string from "LEN" to last byte of "Resp". 1 byte.
- (f) Response shown as below means that "Setting (Operation) is successful".

02H	MS	Cmd	BCC
-----	----	-----	-----

- (g) Response shown as below means that "Setting (Operation) is failed".

01H	FFH	00H
-----	-----	-----

- (h) In some commands, DK-1500 just only responds a success or failure.
- (i) In all request and response format in this document, if a parameter doesn't show its size and its will always be 1 byte.
- (j) All data in the request and response, Ex: Serial number, UID, Page data, Block data, Key and Password are transmitted from HIGH byte first.

2.2 RFM-001**(1) Format of Request**

LEN	MS	Cmd	CT	PN	[Data]	BCC
-----	----	-----	----	----	--------	-----

(a) LEN: Length of string.

(b) MS = 00H, select RFM-001.

(c) Cmd: Command.

0 --> Read Page.

1 --> Write Page.

2 --> Lock Page.

Other value --> DK-1500 will return a failed message.

(d) CT: Card Type

0 --> Read Only.

1 --> Read/Write.

2 --> Multi-Page.

Other value --> DK-1500 will return a failed message.

(e) PN: Page Number. If CT = 0 or 1 then Num is don't care. Its range is 1~17(01H~11H).

(f) Data: Data exists just only in "Write Page" command. Its length is 8 bytes.

(g) BCC: Checksum.

(2) Format of Response

LEN	MS	Cmd	Status	CT	PN	[Data]	BCC
-----	----	-----	--------	----	----	--------	-----

(a) LEN: Length of string.

(b) MS = 00H, select RFM-001.

(c) Cmd: Command.

(d) Status: Status of transponder. (Only available in Multi-Page Type)

0 --> Read Unlocked Page.

1 --> Programming done.

2 --> Read Locked Page.

If CT = 0 or 1, ststus will always be 0.

(e) CT: Card Type.

(f) PN: Page Number.

(g) Data: Page data. Read Page and Write Page command will have this field, 8 bytes.

(h) BCC: Checksum.

(3) Example:**Request: Read Page**

LEN	MS	Cmd	CT	PN	BCC
04	00	00	00	00	BCC

[HEX]**LEN = 04H = 4****MS = 00H = RFM-001****Cmd = 00H = Read Page****CT = 00H = Read Only Type****PN = 00H (don't care)****Response: Read Page OK.**

LEN	MS	Cmd	Status	CT	PN	[Data]								BCC
0D	00	00	00	00	00	11	22	33	44	55	66	77	88	BCC

[HEX]**LEN = 0DH = 13****MS = 00H = RFM-001****Cmd = 00H = Read Page****Status = 00H = Read Unlocked Page****CT = 00H = Read Only Type****PN = 00H (don't care)****Data = 1122334455667788 (content of the read only transponder)**

Request: Write Page

LEN	MS	Cmd	CT	PN	[Data]								BCC
0C	00	01	02	0A	01	02	03	04	05	06	07	08	BCC

[HEX]

LEN = 0CH = 12
 MS = 00H = RFM-001
 Cmd = 01H = Write Page
 CT = 02H = Multi-Page Type
 PN = 0AH = Page 10
 Data = 0102030405060708H

Response: Write Page ok

LEN	MS	Cmd	Status	CT	PN	[Data]								BCC
0D	00	01	01	02	0A	01	02	03	04	05	06	07	08	BCC

[HEX]

LEN = 0DH = 13
 MS = 00H = RFM-001
 Cmd = 01H = Write Page
 Status = 01H = Programming done
 CT = 02H = Multi-Page Type
 PN = 0AH = Page 10
 Data = 0102030405060708H

Response: Write Page Error. This page is locked.

LEN	MS	Cmd	Status	CT	PN	[Data]								BCC
0D	00	01	02	02	0A	FF	FF	FF	FF	FF	FF	FF	FF	BCC

[HEX]

LEN = 0DH = 13
 MS = 00H = RFM-001
 Cmd = 01H = Write Page
 Status = 02H = Read Locked Page (This page is locked. Writing is failed.)
 CT = 02H = Multi-Page Type
 PN = 0AH = Page 10
 Data = FFFFFFFFFFFFFFFFH (content of Page10)

Request: Lock Page

LEN	MS	Cmd	CT	PN	BCC
04	00	02	02	00	BCC

[HEX]

LEN = 04H = 4

MS = 00H = RFM-001

Cmd = 02H = Lock Page

CT = 02H = Multi-Page Type

PN = 00H (Error, Page Num must be from 01H ~ 11H)

This request will get a “Failed” response because its PN is incorrect.

Response: Lock Page Error.

01	FF	BCC
----	----	-----

[HEX]

This response means failed operation.

Request: Lock Page

LEN	MS	Cmd	CT	PN	BCC
04	00	02	02	01	BCC

[HEX]

LEN = 04H = 4

MS = 00H = RFM-001

Cmd = 02H = Lock Page

CT = 02H = Multi-Page Type

PN = 01H = Page1

Request: Lock page ok

LEN	MS	Cmd	BCC
02	00	02	BCC

[HEX]

This response means successful operation.

2.3 RFM-003

(1) Format of Request

LEN	MS	Cmd	BCC
-----	----	-----	-----

(a) LEN: Length of string.

(b) MS = 01H, select RFM-003.

(c) Cmd: Command. Only 1 command – Read Page. Cmd = 00H

(2) Format of Response

LEN	MS	Cmd	[Data]	BCC
-----	----	-----	--------	-----

(a) LEN: Length of string.

(b) MS = 01H, select RFM-003.

(c) Cmd: Command.

(d) Data: Page data. 5 bytes.

(3) Example:

Request:

LEN	MS	Cmd	BCC
02	01	00	BCC

[HEX]

LEN = 02H = 2

MS = 01H = RFM-003

Cmd = 00H = Read Page

Response: Success.

LEN	MS	Cmd	[Data]					BCC
07	01	00	01	02	03	04	05	BCC

[HEX]

LEN = 06H = 6

MS = 01H = RFM-003

Cmd = 00H = Read Page

Data = 0102030405H

Response: Failed.

01	FF	BCC
----	----	-----

[HEX]

2.4 RF-220

(1) Format of Request

LEN	MS	Cmd	[Data]	BCC
------------	-----------	------------	---------------	------------

(a) LEN: Length of string.

(b) MS = 02H, select RF-220.

(c) Cmd: Command.

00H --> Read Serial Number

01H --> Read Block

02H --> Write Block

03H --> Select Key Number

04H --> Load Key to EEPROM

06H --> Read Module Version

Other value --> DK-1500 will return a failed message.

(d) Data: It includes parameters and data needed by different command. Its format and length varies from different command. Please refer to description of each command.

(e) BCC: Checksum.

(2) Format of Response

LEN	MS	Cmd	[Data]	BCC
------------	-----------	------------	---------------	------------

(a) LEN: Length of string.

(b) MS = 02H, select RF-220.

(c) Cmd: Command.

(d) Data format and length varies from different command. Please refer to description of each command.

(3) Request and Response Format of Command: Read Serial Number**Request:**

LEN	MS	Cmd	BCC
02	02	00	BCC

[HEX]**LEN = 02H = 2****MS = 02H = RF-220****Cmd = 00H = Read Serial Number****Response: success**

LEN	MS	Cmd	SN	BCC
06	02	00	4 bytes	BCC

[HEX]**LEN = 06H = 6****MS = 02H = RF-220****Cmd = 00H = Read Serial Number****SN = Serial Number, 4 bytes.****Response: failed.**

01	FF	BCC
----	----	-----

[HEX]

Example:

Request:

LEN	MS	Cmd	BCC
02	02	00	BCC

[HEX]

LEN = 02H = 2

MS = 02H = RF-220

Cmd = 00H = Read Serial Number

Response: success

LEN	MS	Cmd	SN				BCC
06	02	00	01	02	03	04	BCC

[HEX]

LEN = 06H = 6

MS = 02H = RF-220

Cmd = 00H = Read Serial Number

SN = 01020304H

(4) Request and Response Format of Command: Read Block**Request:**

LEN	MS	Cmd	BN	BCC
03	02	01	BN	BCC

[HEX]**LEN = 03H = 3****MS = 02H = RF-220****Cmd = 01H = Read Block****BN = Block Number. Range: 00H – 3FH****Response: success**

LEN	MS	Cmd	Block Data	BCC
12	02	01	16 bytes	BCC

[HEX]**LEN = 12H = 18****MS = 02H = RF-220****Cmd = 01H = Read Block****Block Data = 16 bytes.****Response: failed.**

01	FF	BCC
----	----	-----

[HEX]

Example:

Request:

LEN	MS	Cmd	BN	BCC
03	02	01	00	BCC

[HEX]

LEN = 03H = 3

MS = 02H = RF-220

Cmd = 01H = Read Block

BN = 00H

Response: success

LEN	MS	Cmd	Block Data																BCC
12	02	01	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	BCC

[HEX]

LEN = 12H = 18

MS = 02H = RF-220

Cmd = 01H = Read Block

Block Data = 000102030405060708090A0B0C0D0E0FH

(5) Request and Response Format of Command: Write Block**Request:**

LEN	MS	Cmd	BN	Block Data	BCC
13	02	02	BN	16 bytes	BCC

[HEX]**LEN = 13H = 19****MS = 02H = RF-220****Cmd = 02H = Write Block****BN = Block Number. Range: 00H – 3FH****Block Data = Data written to block****Response: success**

LEN	MS	Cmd	Block Data	BCC
12	02	02	16 bytes	BCC

[HEX]**LEN = 12H = 18****MS = 02H = RF-220****Cmd = 02H = Write Block****Block Data = 16 bytes.****Response: failed.**

01	FF	BCC
----	----	-----

[HEX]

Example:

Request:

LEN	MS	Cmd	BN	Block Data																BCC
13	02	02	00	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	BCC

[HEX]

LEN = 13H = 19

MS = 02H = RF-220

Cmd = 02H = Write Block

BN = 00H

Block Data = 000102030405060708090A0B0C0D0E0FH

Response:

LEN	MS	Cmd	Block Data																BCC
12	02	02	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	BCC

[HEX]

LEN = 12H = 18

MS = 02H = RF-220

Cmd = 02H = Write Block

Block Data = 000102030405060708090A0B0C0D0E0FH

(6) Request and Response Format of Command: Select Key Number**Request:**

LEN	MS	Cmd	KN	BCC
03	02	03	KN	BCC

[HEX]**LEN = 03H = 3****MS = 02H = RF-220****Cmd = 03H = Select Key Number****KN = Key Number. Range: 00H – 20H (Set 00 to disable Key)****Response: success**

LEN	MS	Cmd	BCC
02	02	03	BCC

[HEX]**Response: failed.**

01	FF	BCC

[HEX]**Example:****Request:**

LEN	MS	Cmd	KN	BCC
03	02	03	01	BCC

[HEX]**LEN = 03H = 3****MS = 02H = RF-220****Cmd = 03H = Select Key Number****KN = 01H = Key No.1****Response: success**

LEN	MS	Cmd	BCC
02	02	03	BCC

[HEX]

(7) Request and Response Format of Command: Load Key to EEPROM

Request:

LEN	MS	Cmd	KN	KEY	BCC
09	02	04	KN	6 bytes	BCC

[HEX]

LEN = 09H = 9

MS = 02H = RF-220

Cmd = 04H = Load Key to EEPROM

KN = Key Number. Range: 01H – 20H

KEY = Key value. 6 bytes.

Response: success

LEN	MS	Cmd	BCC
02	02	04	BCC

[HEX]

Response: failed.

01	FF	BCC
----	----	-----

[HEX]

Example:

Request:

LEN	MS	Cmd	KN	KEY						BCC
09	02	04	01	FF	FF	FF	FF	FF	FF	BCC

[HEX]

LEN = 09H = 9

MS = 02H = RF-220

Cmd = 04H = Load Key to EEPROM

KN = 01H = Key No.1

KEY = FFFFFFFF FFH

Response: success

LEN	MS	Cmd	BCC
02	02	04	BCC

[HEX]

(8) Request and Response Format of Command: Read Module Version**Request:**

LEN	MS	Cmd	BCC
02	02	06	BCC

[HEX]**LEN = 02H = 2****MS = 02H = RF-220****Cmd = 06H = Read Module Version****Response:**

LEN	MS	Cmd	Version	BCC
10	02	06	14 bytes	BCC

[HEX]**LEN = 10H = 16****MS = 02H = RF-220****Cmd = 06H = Read Module Version****Version = Module Version Information, 14 bytes.**

Example:

Request:

LEN	MS	Cmd	BCC
02	02	06	BCC

[HEX]

LEN = 02H = 2

MS = 02H = RF-220

Cmd = 06H = Read Module Version

Response:

LEN	MS	Cmd	Version													BCC	
10	02	06	'V'	'3'	'.'	'0'	'0'	' '	'R'	'F'	'-'	'2'	'2'	'0'	' '	' '	BCC

[HEX]

LEN = 10H = 16

MS = 02H = RF-220

Cmd = 06H = Read Module Version

Version = "V3.00 RF-220 ".

2.5 RF-230**(1) Format of Request**

LEN	MS	Cmd1	Cmd2	[Data]	BCC
------------	-----------	-------------	-------------	---------------	------------

(a) **LEN**: Length of string.

(b) **MS** = 03H, select RF-230.

(c) **Cmd1** = Command1.

00H --> Read UID

10H --> Read Block

20H --> Write Block

30H --> Lock Block

40H --> Read Module Version

60H --> Write AFI

70H --> Lock AFI

A8H --> Write Locked Block

B8H --> Kill

Other value --> DK-1500 will return a failed message.

<Please refer to RF-230 datasheet>

(d) **Cmd2** = Command2. (Card Type)

00H --> All ISO 15693 compatible tags

20H --> TI Tag-it HF-I Plus

30H --> TI Tag-it HF-I Pro/Standard

40H --> Infineon My-d

50H --> EM 4135

60H --> Philips Icode2

Other value --> DK-1500 will return a failed message.

<Please refer to RF-230 datasheet>

(e) **Data**: It includes parameters and data needed by different command. Its format and length varies from different command. Please refer to RF-230 datasheet.

(f) **BCC**: Checksum.

(2) Format of Response

LEN	MS	Cmd1	[Data]	BCC
-----	----	------	--------	-----

(a) LEN: Length of string.

(b) MS = 03H, select RF-230.

(c) Cmd: Command1.

(d) Data format and length varies from different command. Please refer to RF-230 datasheet.

(3) Request and Response Format of Command: Read UID

Request:

LEN	MS	Cmd1	Cmd2	BCC
03	03	00	Cmd2	BCC

[HEX]

LEN = 3

MS = 03H = RF-230

Cmd1 = 00H = Read UID

Cmd2 = Command2

Response: Success

LEN	MS	Cmd1	Data	BCC
11	03	00	UID & other information, 15 bytes.	BCC

[HEX]

LEN = 11H = 17

MS = 03H = RF-230

Cmd1 = 00H = Read UID

Data = UID & other information. Please see RF-230 datasheet.

Response: failed.

LEN	MS	BCC
01	FF	BCC

[HEX]

Example:

Request:

LEN	MS	Cmd1	Cmd2	BCC
03	03	00	00	BCC

[HEX]

LEN = 3

MS = 03H = RF-230

Cmd1 = 00H = Read UID

Cmd2 = 00H = All ISO 15693 compatible tags

Response: Success

LEN	MS	Cmd1	UID & other information														BCC
11	03	00	00	00	E0	07	00	00	12	C9	9C	06	00	00	00	00	BCC

[HEX]

LEN = 11H = 17

MS = 03H = RF-230

Cmd1 = 00H = Read UID

Data = 0000E007000012C99C060000000000 = UID & other information. Please see RF-230 datasheet. (The red text is UID)

(4) Request and Response Format of Command: Read Block

Request:

LEN	MS	Cmd1	Cmd2	BN	BCC
04	03	10	Cmd2	BN	BCC

[HEX]

LEN = 4

MS = 03H = RF-230

Cmd1 = 10H = Read Block

Cmd2 = Command2

BN = Block Number (Its range varies from tag to tag)

Response: Success (Block size may be 4 bytes or 8 bytes)

LEN	MS	Cmd1	Flags	Security	Block Data	BCC
LEN	03	10	Flags	Security	4 or 8 bytes	BCC

[HEX]

LEN = 08H or 0CH

MS = 03H = RF-230

Cmd1 = 10H = Read Block.

Flags = Please see ISO15693-3 document.

Security = Please see tag's datasheet.

Block Data = 4 or 8 bytes block data. (Only EM 4135 tag has 8 bytes blocks)

Response: failed.

01	FF	BCC
----	----	-----

[HEX]

Example:

Request:

LEN	MS	Cmd1	Cmd2	BN	BCC
04	03	10	20	00	BCC

[HEX]

LEN = 4

MS = 03H = RF-230

Cmd1 = 10H = Read Block

Cmd2 = 20H = TI Tag-it HF-I Plus

BN = Block 00H

Response: Success

LEN	MS	Cmd1	Flags	Security	Block Data				BCC
08	03	10	00	00	12	34	56	78	BCC

[HEX]

LEN = 08H

MS = 03H = RF-230

Cmd1 = 10H = Read Block.

Flags = 00H

Security = 00H

Block Data = 12345678H

(5) Request and Response Format of Command: Write Block**Request:**

LEN	MS	Cmd1	Cmd2	BN	Block data	BCC
04	03	20	Cmd2	BN	4 or 8 bytes	BCC

[HEX]**LEN = 4****MS = 03H = RF-230****Cmd1 = 20H = Write Block****Cmd2 = Command2****BN = Block Number (Its range varies from tag to tag)****Block data = 4 or 8 bytes****Response: Success (Block size may be 4 bytes or 8 bytes)**

LEN	MS	Cmd1	Flags	Security	Block Data	BCC
LEN	03	20	Flags	Security	4 or 8 bytes	BCC

[HEX]**LEN = 08H or 0CH****MS = 03H = RF-230****Cmd1 = 20H = Write Block.****Flags = Please see ISO15693-3 document.****Security = Please see tag's datasheet.****Block Data = 4 or 8 bytes block data. (Only EM 4135 tag has 8 bytes blocks)****Response: failed.**

01	FF	BCC
----	----	-----

[HEX]

Example:

Request:

LEN	MS	Cmd1	Cmd2	BN	Block data				BCC
08	03	20	20	00	12	34	56	78	BCC

[HEX]

LEN = 4

MS = 03H = RF-230

Cmd1 = 20H = Write Block

Cmd2 = 20H = TI Tag-it HF-I Plus

BN = Block 00H

Response: Success

LEN	MS	Cmd1	Flags	Security	Block Data				BCC
08	03	20	00	00	12	34	56	78	BCC

[HEX]

LEN = 08H

MS = 03H = RF-230

Cmd1 = 20H = Write Block.

Flags = 00H

Security = 00H

Block Data = 12345678H

(6) Request and Response Format of Command: Lock Block**Request:**

LEN	MS	Cmd1	Cmd2	BN	BCC
04	03	30	Cmd2	BN	BCC

[HEX]**LEN = 4****MS = 03H = RF-230****Cmd1 = 30H = Lock Block****Cmd2 = Command2****BN = Block Number (Its range varies from tag to tag)****Response: Success (Block size may be 4 bytes or 8 bytes)**

LEN	MS	Cmd1	Flags	Security	Block Data	BCC
LEN	03	30	Flags	Security	4 or 8 bytes	BCC

[HEX]**LEN = 08H or 0CH****MS = 03H = RF-230****Cmd1 = 30H = Lock Block.****Flags = Please see ISO15693-3 document.****Security = Please see tag's datasheet.****Block Data = 4 or 8 bytes block data. (Only EM 4135 tag has 8 bytes blocks)****Response: failed.**

01	FF	BCC
----	----	-----

[HEX]

Example:

Request:

LEN	MS	Cmd1	Cmd2	BN	BCC
04	03	30	20	00	BCC

[HEX]

LEN = 4

MS = 03H = RF-230

Cmd1 = 30H = Lock Block

Cmd2 = 20H = TI Tag-it HF-I Plus

BN = Block 00H

Response: Success

LEN	MS	Cmd1	Flags	Security	Block Data				BCC
08	03	30	00	01	12	34	56	78	BCC

[HEX]

LEN = 08H

MS = 03H = RF-230

Cmd1 = 30H = Read Block.

Flags = 00H

Security = 01H, This block is locked.

Block Data = 12345678H

(7) Request and Response Format of Command: Read Module Version**Request:**

LEN	MS	Cmd1	Cmd2	BCC
03	03	40	Cmd2	BCC

[HEX]**LEN = 3****MS = 03H = RF-230****Cmd1 = 40H = Read Module Version****Cmd2 = Command2 = Don't care.****Response:**

LEN	MS	Cmd1	Version	BCC
10	03	40	14 bytes	BCC

[HEX]**LEN = 10H = 16****MS = 03H = RF-230****Cmd = 40H = Read Module Version****Version = Module Version Information, 14 bytes.****Response: failed.**

01	FF	BCC
----	----	-----

[HEX]

Example:

Request:

LEN	MS	Cmd1	Cmd2	BCC
03	03	40	00	BCC

[HEX]

LEN = 3

MS = 03H = RF-230

Cmd1 = 40H = Read Module Version

Cmd2 = 00 = Don't care.

Response:

LEN	MS	Cmd 1	Version														BC C
10	03	40	'V'	'1'	'.'	'0'	'3'	' '	'R'	'F'	'-'	'2'	'3'	'0'	' '	' '	BC C

[HEX]

LEN = 10H = 16

MS = 03H = RF-230

Cmd = 40H = Read Module Version

Version = "V1.03 RF-230 ".

(8) Request and Response Format of Command: Write AFI**Request:**

LEN	MS	Cmd1	Cmd2	AFI	BCC
04	03	60	Cmd2	AFI	BCC

[HEX]**LEN = 4****MS = 03H = RF-230****Cmd1 = 60H = Write AFI****Cmd2 = Command2****AFI = 1 byte.****Response:**

LEN	MS	Cmd1	AFI	BCC
03	03	60	AFI	BCC

[HEX]**LEN = 03H****MS = 03H = RF-230****Cmd = 60H = Write AFI****AFI = 1 byte.****Response: failed.**

01	FF	BCC
----	----	-----

[HEX]

Example:

Request:

LEN	MS	Cmd1	Cmd2	AFI	BCC
04	03	60	20	01	BCC

[HEX]

LEN = 4

MS = 03H = RF-230

Cmd1 = 60H = Write AFI

Cmd2 = 20H = TI Tag-it HF-I Plus

AFI = 01H

Response:

LEN	MS	Cmd1	AFI	BCC
03	03	60	01	BCC

[HEX]

LEN = 03H

MS = 03H = RF-230

Cmd = 60H = Write AFI

AFI = 01H

(9) Request and Response Format of Command: Lock AFI

Request:

LEN	MS	Cmd1	Cmd2	BCC
03	03	70	Cmd2	BCC

[HEX]

LEN = 3

MS = 03H = RF-230

Cmd1 = 70H = Lock AFI

Cmd2 = Command2

Response: Success

LEN	MS	Cmd1	BCC
02	03	70	BCC

[HEX]

Response: failed.

LEN	MS	BCC
01	FF	BCC

[HEX]

Example:

Request:

LEN	MS	Cmd1	Cmd2	BCC
03	03	70	20	BCC

[HEX]

LEN = 3

MS = 03H = RF-230

Cmd1 = 70H = Lock AFI

Cmd2 = 20H = TI Tag-it HF-I Plus

Response: Success

LEN	MS	Cmd1	BCC
02	03	70	BCC

[HEX]

Locking is successful.

(10) Request and Response Format of Command: Write Locked Block

Request:

LEN	MS	Cmd1	Cmd2	Vendor code	UID	Password	BN	Data	BCC
15	03	A8	30	07	8 bytes	4 bytes	BN	4 bytes	BCC

[HEX]

LEN = 15H = 21

MS = 03H = RF-230

Cmd1 = A8H = Write Locked Block

Cmd2 = 30H = TI Tag-it HF-I Pro (This command is only supported by TI Tag-it HF-I Pro tags)

Vendor code = 07H

UID = 8 bytes UID code

Password = 4 bytes

BN = Block Number

Data = 4 bytes block data

Please see RF-230 datasheet to get more information about this command.

Response:

LEN	MS	Cmd1	Flags	Security	Block Data	BCC
08	03	A8	Flags	Security	4 bytes	BCC

[HEX]

LEN = 08H

MS = 03H = RF-230

Cmd1 = A8H = Write Locked Block

Flags = Please see ISO15693-3 document.

Security = Please see tag's datasheet.

Block Data = 4 bytes block data.

Response: failed.

01	FF	BCC
----	----	-----

[HEX]

Example:

Request:

LEN	M S	Cmd 1	Cmd 2	VD	UID								Password				B N	Data				BC C
15	03	A8	30	07	E0	07	00	00	12	34	56	78	99	88	77	66	01	77	77	77	77	BC C

[HEX]

Response:

LEN	MS	Cmd1	Flags	Security	Data				BCC
08	03	A8	00	01	77	77	77	77	BCC

[HEX]

This block is locked but we still wrote it successfully.

(11) Request and Response Format of Command: Kill**Request:**

LEN	MS	Cmd1	Cmd2	Vendor code	UID	Password	BCC
10	03	B8	30	07	8 bytes	4 bytes	BCC

[HEX]**LEN = 10H = 16****MS = 03H = RF-230****Cmd1 = B8H = Kill****Cmd2 = 30H = TI Tag-it HF-I Pro (This command is only supported by TI Tag-it HF-I Pro tags)****Vendor code = 07H****UID = 8 bytes UID code****Password = 4 bytes****Please see RF-230 datasheet to get more information about this command.****Response: Success**

LEN	MS	Cmd1	BCC
02	03	B8	BCC

[HEX]**Response: failed.**

01	FF	BCC
----	----	-----

[HEX]

Example:

Request:

LEN	MS	Cmd 1	Cmd 2	VD	UID								Password				BC C
10	03	B8	30	07	E0	07	00	00	12	34	56	78	99	88	77	66	BC C

[HEX]

Response: Success

LEN	MS	Cmd1	BCC
02	03	B8	BCC

[HEX]

This tag is killed and won't respond anymore.